Space Weather Forecast

Issued on Thursday, 24 August 2023 at 01:28 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Ongoing chance of Moderate flares (R1-R2 Radio Blackouts). Chance G1 Minor Storms intervals during day 1 (24 Aug).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity is currently Low, There are seven numbered sunspot regions on the disc, and one small unnumbered region. The modestly sized region in the southeast remains the most complex region. However the analysis remains low confidence and it is possible that this apparent complexity is in some part due to foreshortening. The larger region on the northwest has also seen some development. The other spots on the disc are smaller, simpler mature regions.

A filament eruption to the southeast was observed beginning around 23/2000 UTC, this is still under analysis. No other potentially Earth-directed CMEs (coronal mass ejections) were identified.

Solar Wind / Geomagnetic Activity: Solar winds persisted at slightly elevated speeds, at around 400-450 km/s. The total Interplanetary Magnetic Field (IMF) was weak with the important north-south component also varying weakly. Geomagnetic activity was Quiet (Kp 0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar Activity is expected to be generally Low, but with a Chance of isolated Moderate-class flares.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs currently forecast. Current slightly elevated winds are likely to become enhanced during day 1 (24) due to the arrival of the fast wind associated with a coronal hole, potentially rising to around 500-550km/s. Mainly Quiet geomagnetic activity is expected at first. This increasing to give likely Unsettled to Active intervals during day 1 (24 Aug), with a chance of isolated G1 Minor Storms. Activity is then expected to ease back to mostly Quiet to Unsettled day 2-3 (25-26 Aug). There is a slight chance of this rising again to Unsettled to Active from any further fast wind arrival later day 3 into day 4 (26-27 Aug).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to be at background with no solar radiation storms expected.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	25	5	5	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	30	30	30
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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